

## ABSTRACT

A method and system for providing a path for a new flow between a source node and a destination node in a network is disclosed. The network has a plurality of nodes and a plurality of links between the nodes. The nodes include the source node and the destination node. Each of the links is capable of including a plurality of existing flows and has a capacity. Each of the existing flows has a minimum guaranteed bandwidth. The method and system include determining a benefit for each link of a portion of the plurality of links coupled with a node of the plurality of nodes. The benefit is determined based on the capacity of the link and the minimum guaranteed bandwidth for a portion of the plurality of existing flows that is through the link, the node being a part of the path. The method and system also include selecting a link of the portion of the plurality of links to be part of the path. The link has a maximum benefit for the first portion of the plurality of links and is coupled the node with a second node of the plurality of nodes.